Original Research

Pharmacist supplementary prescribing: A step toward more independence?

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Abstract

Background: Supplementary prescribing (SP) is a drug therapy management model implemented in the United Kingdom since 2003. It is a voluntary partnership between an independent prescriber; a supplementary prescriber, for example, nurse or pharmacist; and the patient, to implement an agreed patient-specific clinical management plan (CMP).

Objective: To investigate pharmacist prescribers' views and experiences of the early stages of SP implementation.

Methods: A qualitative, longitudinal study design was used. A purposive, maximum variability sample of 16 pharmacist supplementary prescribers, trained in Southern England, participated. Eleven were hospital pharmacists, owing to the overrepresentation of hospital pharmacists in the first cohort. Two semi-structured interviews were conducted with each participant, at 3 and 6 months after their registration as prescribers. The Framework approach was used for data collection, management, and analysis.

Results: Three typologies of pharmacists' experiences were identified: "a blind alley", "a stepping stone" and "a good fit". Despite some delays in its implementation, SP was seen as a step forward. Some participants also believed that it improved patient care and pharmacists' integration in the health care team and increased their job satisfaction. However, there was a concern that SP, as first implemented, was bureaucratic and limited pharmacists' freedom in their decision making. Hence, pharmacists were more supportive of the then imminent introduction of a pharmacist independent prescribing (IP) role.

Conclusions: Despite challenges, the SP role represented a step forward for pharmacists in the United Kingdom. It is possible that pharmacist SP can coexist with IP in the areas suitable for CMP use. Elsewhere, SP is likely to become more of a "stepping stone" to an IP role than the preferred model for pharmacist prescribing. Future research needs to objectively assess the outcomes of pharmacist SP,

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preferably in comparison with IP, to inform decision making among pharmacists regarding the adoption of such an innovative role.

Introduction

Prescribing has been perceived as an indicator of professional power and has long been solely the domain of physicians. However, with the increased complexity and multitude of treatments available, the prescribing decision-making process has evolved into a collaborative activity where the input from pharmacists is increasingly appreciated. Furthermore, it has been argued that authorizing pharmacists as the "drug experts" to undertake a prescribing role has the potential to reduce prescribing errors and improve adherence to guidelines.[1] It could also offer patients timely access to their medication and contribute to the provision of seamless, high-quality patient care. The extension of the pharmacist role to include prescribing could also contribute to the development of the pharmacy profession through acknowledging and making better use of pharmacists' skills and knowledge.[2] This innovative role has been made possible in a few countries where prescribing authority has been extended to pharmacists.[3]

Internationally, 3 models of pharmacist prescribing have been identified: independent, dependent, and collaborative.[4] These mainly differ in the extent of responsibility delegated to the pharmacist prescriber, with the independent prescribing (IP) model being the most autonomous. An independent prescriber is responsible for the whole episode of patient care, including clinical assessment, initiation of therapy, and follow-up of treatment, and is legally responsible for the patient outcomes that result from his or her decisions.[5] IP could be restricted to a limited formulary or extended more widely.

In the dependent prescribing model, an independent prescriber delegates the patient follow-up responsibility to a dependent prescriber. The responsibility for patient outcomes is then shared between both prescribers. The delegation should be outlined in a formal framework document that would usually include guidelines or protocols used for treatment, clear description of each prescriber's responsibilities, arrangements for the documentation and feedback to the independent prescriber, and policies for reviewing the guidelines and protocols used.[6] Dependent prescribing is a common model of pharmacist prescribing and can take different forms, for example, prescribing under protocols, according to formulary, repeat prescribing, and prescribing by patient referral. Prescribing under protocols is the most widespread form of dependent prescribing.[4] The protocol used is a formal written guideline. The level of the independent prescriber's confidence in the pharmacist's competence would usually determine the level of authority delegated. Examples of drugs that could be prescribed under protocols include anticoagulants, analgesics, antiemetics and antihypertensive treatments.[6]

The collaborative model is also known as collaborative drug therapy management. It is defined as "a collaborative practice agreement between 1 or more physicians and pharmacists wherein qualified pharmacists working within the context of a defined protocol are permitted to assume professional responsibility for performing patient assessments; ordering drug therapy related laboratory tests; administering drugs; and selecting, initiating, monitoring, continuing, and adjusting drug regimens."[7] It can be used for groups of patients, and the pharmacist has more freedom in making prescribing decisions than under dependent prescribing models. Pharmacist prescribing is currently practiced under 1 or more of these 3 models in the United States, Canada, and the United Kingdom.[5,8,9]

In the United kingdom, pharmacists were first granted dependent prescribing rights in 2003, subject to successful completion of an accredited training course delivered by Higher Education Institutions (HEIs).[10] The course length was either 3 or 6 months according to the HEI. It also included a period of learning in practice (25 days) under the supervision of a medical prescriber (mentor). The mentor would normally be the independent prescriber with whom the pharmacist will establish a prescribing partnership. The dependent prescribing model implemented was named "supplementary prescribing" (SP). It was defined as "a voluntary partnership between an independent (medical or dental) prescriber, a supplementary prescriber and

the patient to implement an agreed, patient specific clinical management plan (CMP)."[10] The CMP is the main document that sets the plan for the patient management by the supplementary prescriber. It has to include specific information, including drugs to be prescribed, criteria for referral back to the independent prescriber, and the date for reviewing the plan.[10] SP was primarily introduced for the management of patients with stable chronic conditions, such as diabetes, and those requiring long-term care, such as anticoagulation. The main aims of its introduction included improving patients' access to medication, making better use of pharmacists' knowledge, and saving physicians' time. Initially, supplementary prescribers were not authorized to include controlled drugs (CDs) or unlicensed medicines in the CMPs. This was later amended through legislation changes in 2005.[9]

In 2006, pharmacist prescribing rights were further extended with the introduction of an IP model that granted them more autonomy.[5] This allowed IP pharmacists to prescribe any medication from the British National Formulary (BNF), except CDs and unlicensed medicines, within the limits of their professional competence. The pharmacist supplementary prescribers undertook a conversion course to qualify and register as independent prescribers. The IP model eliminated the need for a CMP or a partnership with an independent medical prescriber. Arguably, this made pharmacist prescribing in the United Kingdom one of the most far reaching worldwide.[11]

The move from SP to IP model could be seen as a move from an "interdisciplinary" model of care provision to a "transdisciplinary" one. Interdisciplinary approaches involve establishing collaborative team goals and drawing a collaborative management plan. They also involve regular communication between the professionals involved to review and assess the achievement of the pre-agreed goals. This takes place while role boundaries are preserved.[12] Transdisciplinary approaches involve more independent working and some degree of blurring of boundaries. The team members may also need to acquire new skills beyond their original discipline-specific skill set. Both models are distinct from "multidisciplinary" approaches, which, despite involving professionals from different disciplines working to deliver care, lack a structured communication process and can lead to fragmentation of care where work is usually undertaken in isolation.[12]

Published studies examining pharmacist SP have mostly used quantitative, self-complete questionnaires and/or telephone interviews,[13,14] which lack the in-depth nature and the interaction and rapport offered by face-to-face, qualitative data collection methods. Additionally, the qualitative studies of SP implementation and practice have either focused only on the training course or sampled only pharmacists who had commenced prescribing or those who were experienced prescribers.[13,15-17] Other studies had participants from a single hospital, geographical area, or practice setting (primary or secondary care),[18-20] or sampled pharmacists who attended the training course at the same HEI.[21] A recently completed national evaluation of SP revealed several challenges for its implementation but concluded that SP can enhance interprofessional working.[22] However, a recent literature review concluded that SP is likely to be superseded by IP.[23]

In this study, we aimed to understand pharmacists' experiences of the implementation and practice of their SP role and how they evaluated this experience. This was the first study to qualitatively examine the experiences of the pharmacist supplementary prescribers qualified in Southern England of their SP role using a longitudinal study design. It provides an in-depth understanding of pharmacists' experiences, offering a valuable contribution to the development of such role and other innovative pharmacist roles in the United Kingdom and other countries.

Methods

Ethical approval for this study was granted by the North West Multi-centre Research Ethics Committee. A qualitative approach using a longitudinal panel study design was used, as the research topic (SP implementation) had not been studied before.[24] All the pharmacists who qualified as supplementary prescribers at 3 HEIs in Southern England and responded to an earlier questionnaire survey administered at the end of their training course were sent an invitation to participate (n = 45). Acceptance was received from 26 pharmacists.

A purposive, maximum variability sample of 17 pharmacists was then selected, and each was invited to be interviewed on 2 occasions, allowing the completion of up to 34 interviews, which is considered to be a suitable number when using a Framework approach.[25] The pharmacists were selected to represent the different practice

backgrounds, prescribing areas, and SP training providers. The majority, however, were hospital pharmacists, owing to the overrepresentation of hospital pharmacists in the original population (pharmacists attending the first cohort of the training courses in Southern England).[26] The participants included community (working in retail pharmacies), practice (working in general practitioners' [GPs'] practices), primary care trust (PCT), and hospital pharmacists. In England, the PCT is the organization responsible for overseeing and commissioning the provision of health care services in a defined geographical area. The PCT pharmacists usually work as "prescribing advisers" who visit GPs to provide advice on their prescribing and whether it adheres to local and national guidelines. PCT pharmacists trained as supplementary prescribers usually practice SP in a GP practice.

Two interviews were conducted with each participant: the first at 3 months (Appendix [available on the journal's Web site at www.elsevier.com]) and the second at 6 months (details of the 6-month interview are available from the authors) after registration as a prescriber. These time points were chosen to allow for close follow-up of the dynamic implementation process but avoiding memory recall bias among the interviewees. The interviews were semistructured, and the schedules included both open-ended and closed questions. One pilot interview was conducted, after which some changes were made; hence, it was excluded from the final analysis.

The semistructured, face-to-face interviews allowed exploration of participants' views and also ensured coverage of predetermined topics. Each audiotaped interview lasted between 15 and 40 minutes. Audio recordings were transcribed verbatim, and a sample of the transcripts was independently checked for accuracy. The transcripts were numbered chronologically and given a code to indicate whether they were conducted at 3 or 6 months (a or b, respectively). Sample attrition occurred in 1 case where the participant was on maternity leave (SPR7) at the time of her second interview. Another participant (SPR16) was available only for the second interview. In total, 30 interviews were conducted with 16 pharmacists. The interviews were conducted and transcribed by DD, a pharmacist trained in qualitative interviewing, to achieve consistency and facilitate familiarity with and immersion in the data.

Data management and analysis followed the Framework analysis approach,[27] a method particularly useful in applied policy research. Hence, it was seen as appropriate to capture pharmacists' views of how the new policy change worked in practice. Framework analysis involves 5 systematic steps: familiarization with the data, identifying recurring themes, developing a conceptual framework (or "index"), applying the index to the data or "indexing," and finally, charting the themes on thematic charts to facilitate cross- and within-case comparisons. The software Nvivo 2.0® (QSR International, USA) was used for data management. The accuracy of indexing, carried out by DD, was independently checked by a senior researcher (LG). Initially developed themes were then refined through discussion among the researchers, enhancing the rigor of the process. Typologies were then constructed using 3 dimensions: the ability to start prescribing within the study period, the frequency of prescribing, and the self-perceived achievement of the intended outcomes. They were refined through further discussion and then assigned to the interviewees. Data saturation was ascertained, where no new themes were emerging at the end of the analysis. Participant validation was used to confirm credibility of the preliminary findings.

Results

Most the participants were females (n = 13), had a long-term experience as registered

Table 1
Participants' practice background and prescribing areas

Interviewee code	Practice background	Prescribing areas
SPR1	Hospital	Intensive care
SPR2	Community	Multiple[a]
SPR3	Primary care	Elderly care
SPR4	Hospital	Intensive care
SPR5	Hospital	HIV
SPR6	Hospital	Cardiovascular
SPR7	Primary care	Epilepsy
SPR8	Hospital	Cardiovascular
SPR9	Hospital	Pediatric HIV
SPR10	Hospital	Oncology
SPR11	Hospital	Inflammatory bowel disease
SPR12	Hospital	Multiple
SPR13	Primary care	Benzodiazepine use
SPR14	Hospital	Renal
SPR15	Hospital	HIV
SPR16	Community/general practice	Multiple

[a] Prescribing in more than 2 clinical areas.

Box 1. Themes and subthemes

1. Pre-practicing
   I. Motivations
   II. Training matters

2. Supplementary prescribing in action
   I. Problems and limitations
   II. The clinical management plan
   III. Changes in practice
   IV. Perceptions
   V. Outcomes

3. A vision for the future
   I. Lessons learned
   II. Independent prescribing

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pharmacists (range = 5-32 years, mean = 18 years), and their age ranged from 29 to 54 years (mean = 40 years). The sample included 11 hospital pharmacists representing various specialties, 1 community pharmacist, 1 practice pharmacist working also in a community pharmacy, and 3 PCT pharmacists. Details of the participants' background practice setting and prescribing areas are summarized in Table 1.

Participants' reflections on their experience of implementing SP offered an insight into how this early cohort perceived its innovative role. Participants revealed that they embarked on undertaking SP hoping that it would improve patient care, enhance their practice, and/or increase their job satisfaction. The analysis revealed 3 major themes: pre-practicing, SP in action, and a vision for the future. These are outlined in Box 1.

Finally, 3 typologies were constructed to describe pharmacists' experiences of implementing SP, namely, "a blind alley," "a stepping stone," and "a good fit." The ability to start prescribing within the follow-up period, the frequency of prescribing, and the self-perceived achievement of the intended outcomes were the dimensions used to inform and construct these typologies.

A blind alley

For 4 pharmacists, the first 6 months felt like going down a "blind alley," where they faced considerable delays and had not started prescribing by the end of the 6 months. Another 2 started practicing near the end of the 6 months but never prescribed. Examining the reasons behind the

delays and nonprescribing revealed that all these pharmacists faced noticeable barriers.

Participants planning to prescribe in community pharmacies or GP practice settings faced problems, including lack of funding, lack of electronic links between the pharmacy premises and the GP practices, difficulty finalizing arrangements with the GP practice, and/or changes in personal circumstances. Additionally, the lack of clinic space and the delays in receiving their personalized prescription pads were reported.

> I've been waiting for the practice partners to agree, and then for them to set up a meeting during the summer, which is difficult because of holidays, and to agree the process which can then take us forward. So the delays haven't been on my part, they've been on the GP practice's part. SPR7a (PCT pharmacist, epilepsy)

In hospitals, delays resulted from the lack of local policies that regulate how SP would be implemented and staffing shortage.

> We haven't been able to appoint someone into my previous position, so I'm actually covering for that as well. And that involved a lot of recruiting and a lot of approvals and financial reporting related to this issue. So because of that I haven't actually had the opportunity to start to do anything new in the pediatric, well I've really just been doing what I'd done before." SPR9a (hospital pharmacist, pediatric human immunodeficiency virus [HIV])

Issues relating to the CMP, such as the need for input from several team members, in its design or the need to cover multiple pathologies also caused delay.

> It was safer to create CMPs for all of our 30 patients first, to go through them together to make sure we are happy with them. SPR3a (PCT pharmacist, multiple)

This delay resulted in participants' frustration, loss of enthusiasm, and fear of losing the skills they gained in the training course and of losing their independent prescribers' and their teams' support. The lack of financial reward for the new role was discouraging as well.

> The doctor I'm working with is very understanding; however, I don't know how long that will last. Personally, I'm quite frustrated and disappointed. SPR9a (hospital pharmacist, pediatric HIV)

Some participants had to make significant changes to manipulate the barriers encountered. Examples included having to change their

prescribing area, for example, from asthma to smoking cessation and from nephrology to diabetes. This posed several challenges, including having to rebuild relations with the new team and re-explain SP. Another participant had to change the GP practice in which she planned to prescribe, when the original one replaced her with a nurse supplementary prescriber.

> …because she was employed by the practice … because I have been away for two months effectively they haven't bothered to talk to me and they've just sorted it out that way. SPR13b (PCT pharmacist, benzodiazepine-use review)

Despite the delay, the pharmacists retained their confidence and felt optimistic that they will eventually start prescribing. They also believed that it was a useful "learning experience" and reported that there were advantages for undertaking the training and working with their independent medical prescribers during the period of learning in practice. There was a positive feeling about being able to feed back those problems and help other pharmacists to avoid them.

> For me it's a learning experience, to make mistakes and to learn how do I make sure that Supplementary Prescribing is properly implemented with my other colleagues. SPR7a (PCT pharmacist, epilepsy)

A stepping stone

Three participants, who started prescribing within the first 6 months, faced limitations on their practice. This made them feel restricted in using their prescribing authority. Another 3 started but prescribed infrequently. The limitations were mainly imposed by the independent prescriber or the medical team, including having to discuss prescribing decisions with the team beforehand, restricting SP to an outpatient clinic but not the ward, or to initiate but not manage ongoing drug therapy. These limitations were introduced with the explicit aim of "protecting the junior physicians' training," as 1 pharmacist quoted, but the participants believed that physicians wanted to also retain authority on "their" patients.

> I am quite limited in the way that the clinical director wants me to do it, he wanted me to voice it rather than going ahead and make any changes but to actually talk and agree on the consultant led ward round. SPR1a (hospital pharmacist, intensive care)

Additionally, the legal requirements of SP did not initially allow the inclusion of CDs and unlicensed medicines in the CMP. This left the participants unable to prescribe some of their patients' medications despite their competence to do this by virtue of their background and training in their therapeutic areas. Other example given was being unable to include, in the CMP, medications categorized as pharmacy (P) medicines, which the pharmacists were authorized to sell in the community pharmacies under UK regulations. Furthermore, the administrative work involved in developing the CMP represented major limitation inherent in SP. Despite using different strategies to reduce the amount of paper work, including referring to guidelines and the use of a fully interactive, electronic form, most perceived the CMP as "overdocumenting," especially in hospitals, and a barrier to GPs' referral in primary care.

> It's the CMP that disturbs. I mean I do understand why it's there, but as I've drafted the guidelines to begin with that I've then included in my CMP, and I've agreed that with the consultant, I might as well do it independently. SPR4b (hospital pharmacist, intensive care)

The resultant pressure on their time forced 2 pharmacists to limit the use of SP, after becoming more experienced and capable of identifying when a CMP can be practically used.

> The mechanism of actually putting the CMP and remembering to do it and remembering to put it in place has proven to be slow. SPR10b (hospital pharmacist, oncology)

Hence, the limitations faced made these pharmacists believe that SP was unlikely to have achieved a significant impact on saving physicians' time or on the way their patients' care was delivered. They also did not believe that it would have a positive economic impact, especially because they were senior pharmacists generally replacing junior- or middle-grade physicians. The training and service set up costs were perceived to have reduced the impact as well.

> You're saving perhaps in total 15-30 minutes a week of patient's time and doctor's time and, you know, in terms of prescribing it's no more … you couldn't say it's more effective than it was before. SPR15a (hospital pharmacist, HIV)

There was a perceived need for more autonomy and less paper work, which were believed to be possible through an IP model.

I think really Independent Prescribing is where I see it being most useful but it seemed that Supplementary Prescribing was a useful step along the way. SPR15a (hospital pharmacist, HIV)

Thus, these pharmacists perceived the whole experience to primarily be a "stepping stone" to better integration in their teams, more involvement in patient care and, eventually, independence in making prescribing decisions, through moving on to become independent prescribers.

A good fit

For 4 participants, SP seemed to have moved beyond being a "stepping stone" to achieving most of the outcomes they aimed for and proved to be a "good fit." These pharmacists were able to implement SP promptly and achieved steady increase in the number of prescriptions and patients managed. This success outweighed some of the inherent limitations of SP and enabled them to identify opportunities to expand its use.

They prescribed in outpatient and walk-in clinics in hospitals and GP practices. Their prescribing areas included heart failure, HIV/acquired immunodeficiency syndrome, oncology, and nephrology. Apparently, these settings and prescribing areas were most suitable for SP model. In fact, 2 pharmacists even felt that it was advantageous to have the CMP in place.

I do like the CMPs because they do set out the legal framework and they also tell me what my responsibilities are, they give me guidance when to refer back to the doctor, and it's clear to the patient what I'm doing and what I'm not doing. SPR16 (community/practice pharmacist, multiple)

However, reservations remained on some of the limitations imposed by the CMP, especially being unable to prescribe the entire patient's medication. Additionally, 2 pharmacists believed that there was a need for more training in physical assessment skills. One, however, handled that through collaboratively managing patients with a nurse supplementary prescriber, whose involvement, she believed, had been advantageous. She also believed that the delivery of patient care in that multidisciplinary way, where the physician, nurse, and pharmacist would all be involved, was beneficial for the patients.

This sense of achievement resulted in a significant increase in their job satisfaction. Being accountable for their decisions enhanced participants' desire to achieve the best possible outcomes. It also meant better recognition of their knowledge, more

integration in their teams in addition to "crystallising the 'drug expert' role of the pharmacist." They believed that SP resulted in significant time saving for patients and physicians. As a result, the pharmacists reported that the physicians became progressively supportive and more proactive in initiating SP. They also expected SP to have a positive economic impact for their organizations as well, as they were mainly sharing the clinics with medical consultants.

Doctors' time has been saved. Given the amount of patients I've seen, and how many clinics that would cover, we've saved a lot. We see about 25% of the patients on treatment. SPR5b (hospital pharmacist, HIV)

Cross-case analysis revealed that hospital pharmacists were more likely to start practicing earlier and to report a positive experience. The same was also true for pharmacists who were legalizing ongoing practice and continuing within their original teams, as opposed to starting in new practice settings and teams. The cross-case analysis also revealed the facilitators for achieving this success to include the presence of preexisting close working relationship with the independent medical prescriber and prior integration in their teams.

I see SP as really the icing on the cake, and just confirms the relationship and the role you've already established. If you do supplementary prescribing without being established in the clinic, it's a little bit harder. SPR11a (hospital pharmacist, Inflammatory Bowel Disease (IBD))

Organizational, managerial, and medical colleagues' support was perceived to be important. The presence of an established role for the pharmacist, which would be complemented by the prescribing authority, was also believed to be important. The infrastructures required, such as a clinic space, the administrative support, and access to shared medical records, were also highlighted.

You have to think about all the things like the clinic space, identifying the patients' list; all that sort of things before you prescribe because prescribing at the end of the day is the last process. SPR11b (hospital pharmacist, IBD)

Personal and professional qualities, including long-term experience in the prescribing area, enthusiasm, persistence, and ability to address problems as they arise, seemed to facilitate success. Good communication skills with patients, physicians, and team members were also perceived to be essential.

I think you need to have self confidence as a pharmacist and you need to be able to communicate and know how to talk with the patient especially in this role. SPR5b (hospital pharmacist, HIV)

Overall, and despite the challenges, SP appeared to have taken all the participants a step forward in their career pathway toward claiming more responsibility and more integration in their teams.

Discussion

Overall, the participants in the present study appreciated their experience of implementing SP and considered it an important learning experience and step forward in their own and in their profession's development. The first 2 typologies of experiences identified reflected the range of problems and challenges that faced this first cohort.

The first typology represented the experiences of the pharmacists who were unable to actively prescribe for the first 6 months. For them, this felt like going down "a blind alley," but most remained positive and confident they will eventually start. These pharmacists were mainly community, practice, or PCT pharmacists.

The second typology, "a stepping stone," represented the experiences of those who were able to implement SP in a timely manner but, nevertheless, faced limitations on their ability to use their authority to its maximum potential. These pharmacists mainly practiced in acute specialties, which might not have been the most suitable for SP.

The final typology, "a good fit," represented the experience of those who managed to start promptly, after their training, and prescribed frequently. These pharmacists perceived SP to have achieved positive outcomes and fulfilled many of the aims of its introduction, including saving physicians' time, improving patients' management and their access to medicines, and making better use of pharmacists' skills. These participants also felt that their new role enhanced their integration within their teams and increased their job satisfaction.

When asked about the future of pharmacist SP and how they wanted to see it evolve, all participants in this study preferred the introduction of an IP model, which had not been introduced yet at the time of conducting the interviews but considered SP to be an important step toward achieving this.

Changing roles and claiming new responsibilities is usually faced by initial "teething problems."

This was the case with the implementation of pharmacist SP. The findings from this study revealed that most of the implementation problems in England were encountered in general-practice and community settings. They were similar to those that hindered community nurse prescribing in the United Kingdom, for example, lack of access to patient medical records and delay in issuing prescription pads and, hence, could have been anticipated.[28,29]

Implementation in hospitals also faced some problems, but these were eventually resolved. The resultant delay continued to occur with subsequent cohorts, where, in 2006, the average wait between qualifying and commencing SP for pharmacists ranged from 1 to 2 years with similar problems being reported, suggesting that these problems have not been properly or promptly addressed.[30] This might discourage pharmacists from undertaking an SP role and adversely affect the uptake of SP and its diffusion, as an innovative role, within the pharmacy profession. It also has resource implications for the employers, as the delay would "discount" the value of the gains from training pharmacists to prescribe.[31] Thus, employers need to play a proactive role in ensuring that pharmacists are trained based on the need for the service and to fulfill an already planned service that addresses patient needs. They also need to be better prepared for the trained pharmacists when they qualify to avoid the lengthy delays that faced this first cohort and the subsequent ones.

Participants in this study also reported that the CMP proved to be an ongoing, time-consuming step, which made SP a "bureaucratic" and "cumbersome" process. However, none of the participants reported attempting to prescribe without having an approved CMP as reported in other studies.[19] The need for a CMP was even seen by some participants as a safeguard against patients' or physicians' abuse of the pharmacist authority to prescribe, where patients could ask for specific medications and physicians might use it to "shed" rather than "share" responsibility. Participants managing stable chronic conditions in clinic settings were more likely to report that the CMP did not represent a major problem. On the contrary, a critical-care pharmacist reported limiting the use of SP after initial high activity because of the time required for developing a CMP, explaining it to patients, and using it in practice. Hence, the elimination of the need for a CMP might have been the main advantage of the pharmacist IP model when introduced in 2006.[5] Some

authors have suggested that IP was introduced prematurely without proper evaluation and assessment of its predecessor, SP.[11] On the other hand, IP seemed to offer an alternative model for those who found SP restrictive. Either way, there is a threat that this move might have made SP more vulnerable to "replacement discontinuance," which is the decision to reject an idea to adopt a better one.[32]

Most of the frequent prescribers in this study felt that SP had a positive impact on their job satisfaction, which was confirmed in the later studies that investigated supplementary prescribers' views and the national evaluation of nurse and pharmacist SP.[22,26] However, they still preferred the IP model and considered it to be their ultimate goal. The preference of the IP model expressed by the pharmacists in this study was later echoed in a study of Scottish community pharmacists' views of IP.[33] It, however, contrasts the views of pharmacists from other countries, such as the United States and Australia, who preferred a dependent prescribing role.[28,34] The contrast might be attributed to the nature of the pharmacists in the present study, who were all senior pharmacists. Additionally, having experienced the limitations of a dependent role might have led to this opinion. Hence, there is a need for more evidence to highlight the benefits and limitations of both models (SP and IP) for different settings, prescribing areas, and medical conditions.

Notably, the introduction of pharmacist, and nurse, IP model has been opposed by the medical profession, implying that physicians might accept to share but not to completely delegate prescribing authority.[35] Hence, enhancing physicians' awareness of the benefits and limitations of pharmacist prescribing models should be high on the implementation agenda to alleviate their concerns regarding adverse effects on junior physicians' training. In this study, the participants felt that most of their medical colleagues' resistance tended to slowly change and attributed this to the benefits physicians might have achieved from collaborative working with pharmacists under SP. However, this was the participants' view, as this study did not interview any of their medical colleagues. Studies of physicians' perceptions of pharmacist SP, however, confirmed this positive attitude toward pharmacist prescribing.[17,36] The presence of established working relationships with pharmacists and interprofessional education in the undergraduate years and early in the career pathway can enhance physicians' willingness to accept pharmacist prescribers as

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Box 2. Pre-requisites for successful implementation of pharmacist SP

1. Training pharmacists who are suitable for this specialist and advanced role and who are in a position to promptly use their qualification.
2. The trainee pharmacists need to have a well-established working relationship with their independent prescribers (mentors).
3. Ensuring the availability of all the required infrastructures, policies, and funding in place.
4. Ensuring the suitability of the prescribing area for SP, which requires the development and agreement of a CMP before starting.
5. Provision of more support for pharmacists establishing SP as a new service rather than legalization of ongoing practice, especially in community and general-practice settings.

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complementing rather than competing with them. Junior physicians might even learn by example from the experienced pharmacist prescribers' knowledge and adherence to guidelines.

Thus, this study highlighted some prerequisites for the success of starting a pharmacist SP service in practice. These are summarized in Box 2.

This study was conducted in Southern England, and the follow-up period was limited to 6 months. Longer follow-up could have captured more of the changes that occurred in this dynamic implementation process and determined whether these initial experiences (positive and negative) persisted. As all the participants were senior pharmacists with long-term experience and most of them practiced in hospitals, their views might be different from subsequent cohorts. Additionally, the special nature of SP, as a dependent prescribing model, and of the English National Health Service should be considered when applying these findings to other settings or health care systems. Despite its limitations, the study offers valuable insight into the views of the first cohort of SP pharmacists in England. The longitudinal nature of the study also allowed close follow-up of the changes that occurred during the participants' first 6 months as prescribers.

Conclusions

This study identified several barriers and limitations in the implementation of SP in Southern England, especially in general practice settings. In the prescribing areas and practice settings suitable for developing and using the CMP, SP has largely met pharmacists' needs and those of their patients and teams and has been "a good fit." In other prescribing areas and settings, SP is likely to primarily become a "stepping stone" and training phase for pharmacists before undertaking an IP role.

Successful implementation of SP and similar innovative interdisciplinary roles requires strong working relationships and the availability of infrastructures and organizational support. The lack of these facilitators can take pharmacists down "a blind alley." Despite the challenges, SP has been seen as an important step forward for the pharmacist prescribers. The gradual implementation of pharmacist prescribing in the United Kingdom, in the form of a supplementary followed by an independent role, may provide a pathway for incremental development of nonmedical prescribing models for other countries. However, health systems considering the implementation of pharmacist prescribing will need to carefully assess the transferability and applicability of these models to their settings. The study findings have important research implications as pharmacist prescribing is a promising area for pharmacy practice research. An important research priority would be to investigate and compare the clinical, humanistic and economic outcomes as well as the patient safety implications of both prescribing models (SP and IP). The effect of the socio-demographic characteristics of the prescribers, their prior clinical experience and specialist training on success as prescribers also can be studied. Research could also examine the pharmacists' training needs to become prescribers in order to inform the structure of the training courses.

On the practice and education sides, employers need to ensure that the implementation of a pharmacist prescribing role has been preceded by proper preparation and is introduced strategically to fulfil an identified patient care need. Pharmacy schools/colleges need to incorporate the theoretical aspects of this role and of interdisciplinary working in their undergraduate curricula, which has already started to happen in the UK. Additionally, Pharmacy schools/colleges providing the prescribing training should utilize the experiences of the practicing prescribers in teaching or mentoring to help trainee pharmacists understand what the "real life experiences" are like. Additionally, employers need to ensure that the implementation of a pharmacist prescribing role has been preceded by adequate preparation and is introduced strategically to fulfill an identified patient care need. Prescribing-related continuous professional development should be supported by both employers and educators and become a requirement to continue registration and practice as a prescriber.

Supplementary information

Supplementary data associated with this article can be found, in the online version, at doi: 10.1016/j.sapharm.2010.05.002.

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